



# Cisco Packet Tracer Overview

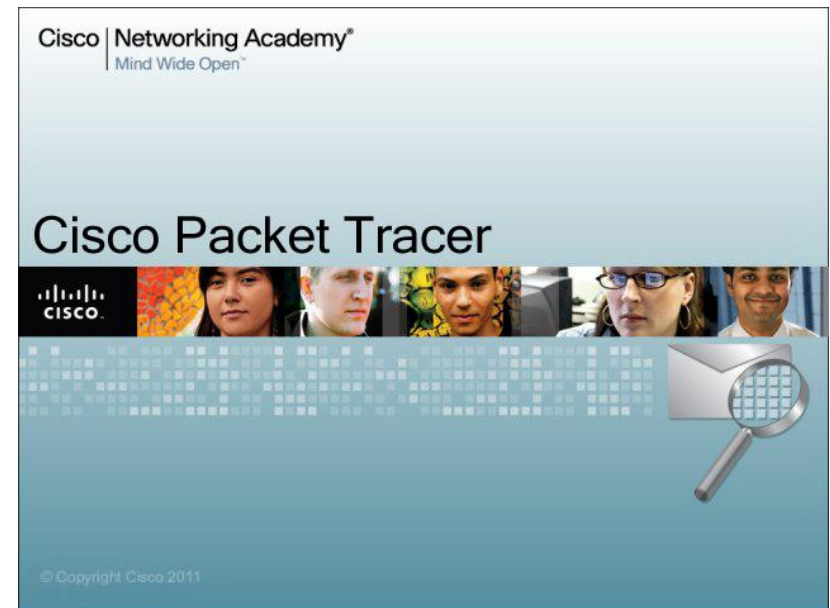
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MAY 2011

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# Agenda

- Cisco Packet Tracer Overview
- Packet Tracker Key Features
- Packet Tracer 5.3.2
- Packet Tracer Practice SBA
- Summary

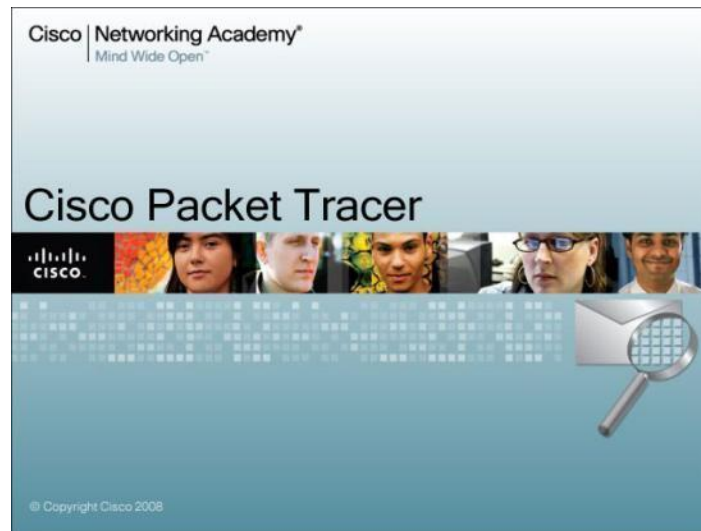


# Packet Tracer Overview



# What is Cisco Packet Tracer?

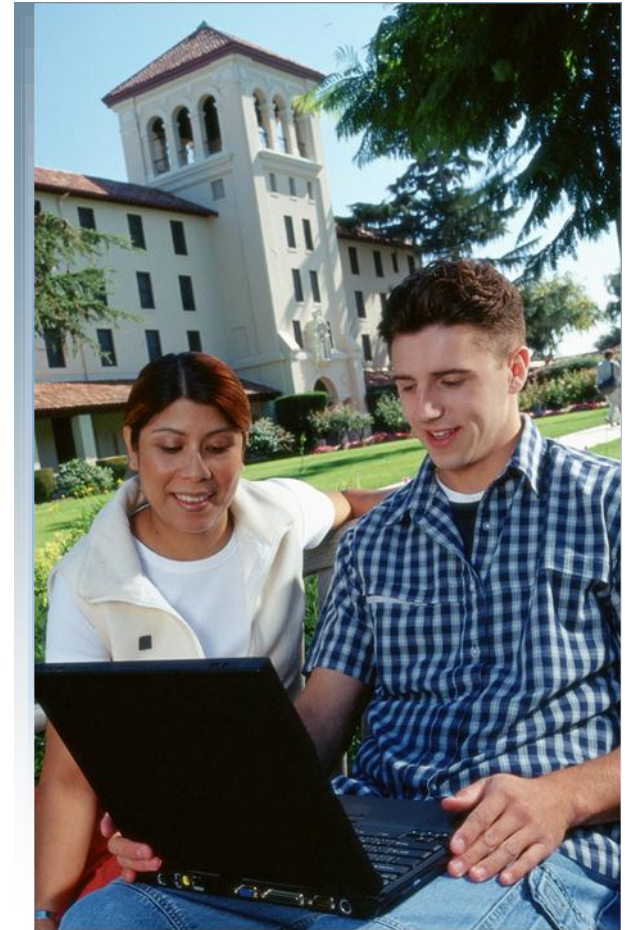
- Comprehensive networking technology teaching and learning software developed by Cisco Networking Academy



- Offers a unique combination of realistic simulation and visualization experiences, complex assessment and activity authoring capabilities, and opportunities for multiuser collaboration and competition

# Simulation-Based Learning

- Innovative features help students and teachers collaborate, solve problems, and learn concepts in an engaging and dynamic social environment
- Supports lectures, group and individual labs, homework, exams, games, collaborations and competitions
- Allows instructors to easily teach and demonstrate complex technical concepts and networking systems design
- Helps students develop important 21<sup>st</sup> century skills



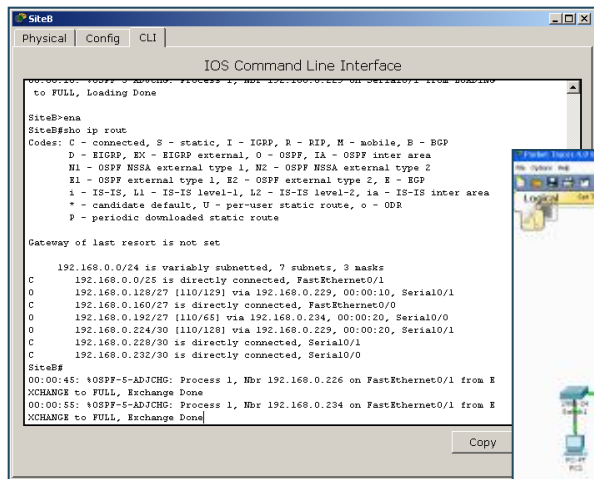
# Packet Tracer

## Key Features

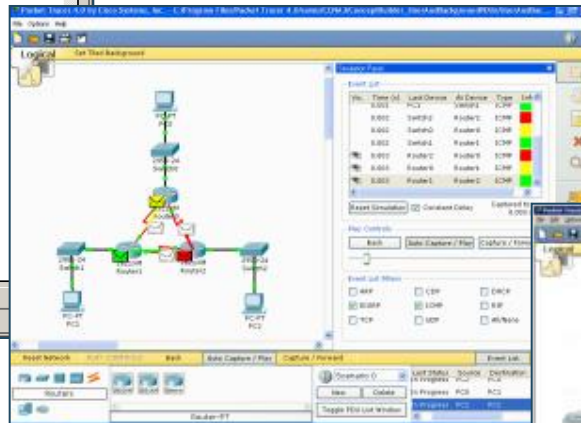


# Simulation, Visualization, Collaboration

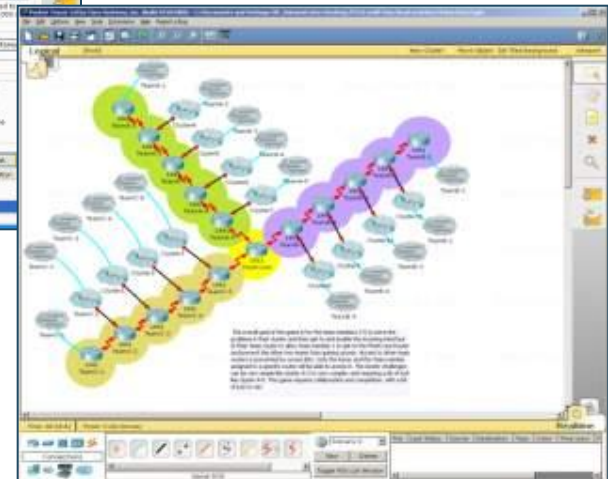
➤ Simulate IOS Commands



➤ Visualize Network Traffic



➤ Collaborate on Multiuser Activities



# Supports Homework and Pre-Lab Prep

The image displays two screenshots of Cisco Packet Tracer 4.0, illustrating its use in network configuration and analysis.

**Left Screenshot:** Shows a network topology with two routers (Router-PT Router0 and Router-PT Router1) connected to four switches (2950-24 Switch0, 2950-24 Switch1, 2950-24 Switch2, and 2950-24 Switch3). The switches are connected to four PCs (PC-PT PC0, PC-PT PC1, PC-PT PC2, and PC-PT PC3). The network is configured with 2 users on Router0 and 2 users on Router1. The switches are labeled with their respective user counts: 55 users for Switch0, 28 users for Switch1, 12 users for Switch2, and 100 users for Switch3. The interface includes a 'Logical' tab, a 'Set Tiled Background' button, and a 'Reset Network' button.

**Right Screenshot:** Shows a network topology with three routers (2621XM Router0, 2621XM Router2, and 2621XM Router1) connected to two PCs (PC-PT PC0 and PC-PT PC1). The interface includes a 'Logical' tab, a 'Set Tiled Background' button, and a 'Reset Network' button. A 'Command Prompt' window is open, showing the command `PC>tracert 192.168.1.2` and the output of the traceroute command. The output shows the path from the PC to the destination IP (192.168.1.2) over a maximum of 30 hops. The PDU information window is also open, showing the details of the Ethernet II and IP packets.

**Command Prompt Output:**

```
Packet Tracer PC Command Line 1.0
PC>tracert 192.168.1.2

Tracing route to 192.168.1.2 over a maximum of 30 hops:
 0  0 ms  0 ms  0 ms  192.168.1.1
 1  4 ms  2 ms  2 ms  192.168.3.1
 2  4 ms          192.168.1.2
```

**PDU Information at Device: Router1**

OSI Model | Inbound PDU Details | Outbound PDU Details

PDU Formats

Ethernet II

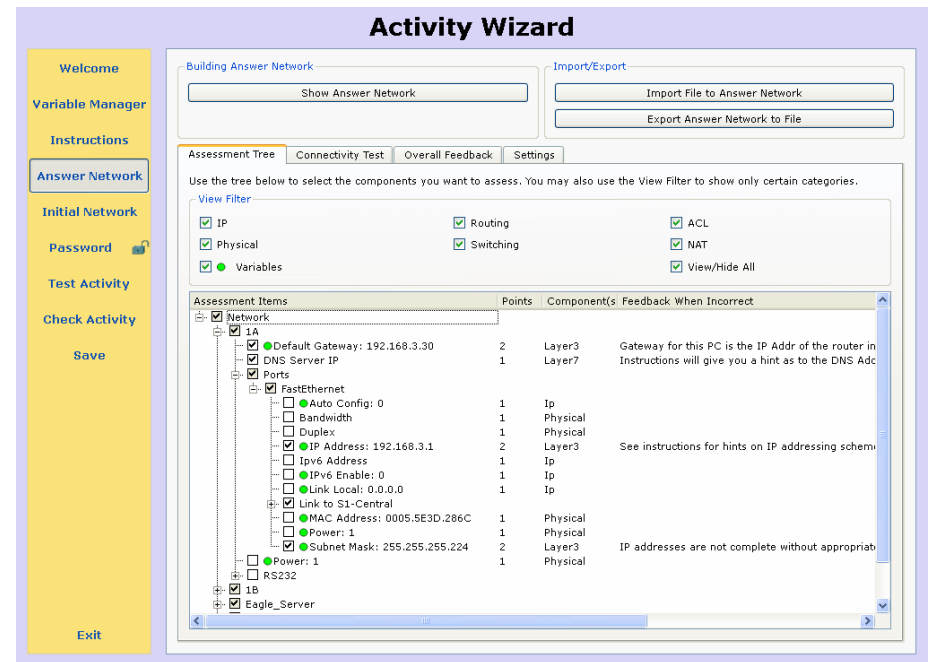
0	4	8	14	19	Byte
PREAMBLE:		DEST MAC:		SRC MAC:	
1010 1010		00E0.F933.5E48		000D.BD99.1B1B	
TYPE:		DATA (VARIABLE LENGTH)		FCS:	
0x800				0x0	

IP

0	4	8	16	19	31	Bits
4		IHL:		DSCP:		0x0
ID:		0x0		FRAG OFFSET:		0x0
TTL:		2		PRO:		0x1
SRC IP:		192.168.3.2		CHKSUM		
DST IP:		192.168.1.2				

# Packet Tracer Activity Wizard

- Anyone can author, the PT Activity Wizard guides you
- The process is basically write instructions, build a correct answer network, specify grading, specify an initial network, save
- Ability to create your own learning activities, tasks, labs, games and complex assessments
- Build scaffolded learning experiences, formative and summative assessments

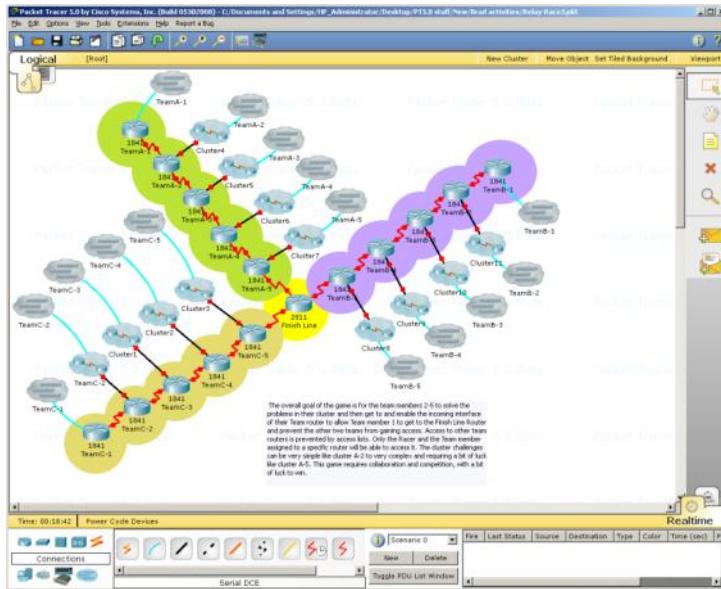


# Packet Tracer Multiuser Functionality

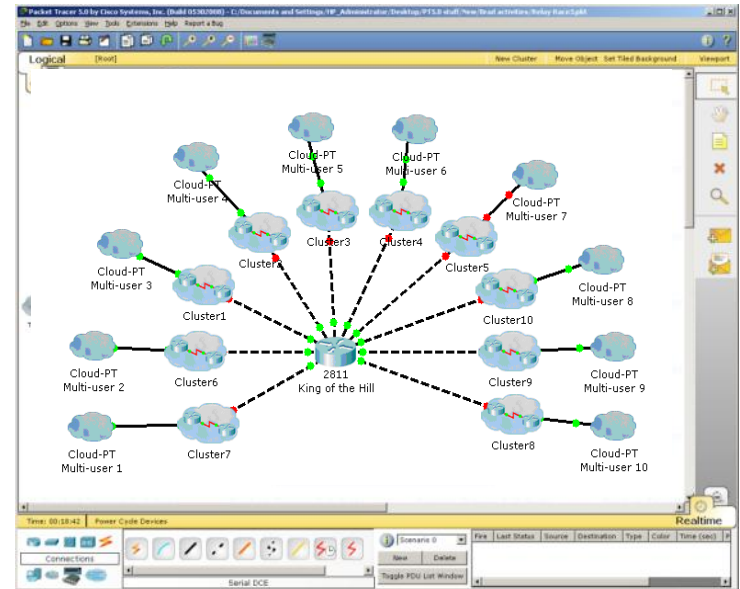
- PT is a network-capable (peer to peer) application, using the real network (TCP socket connections) to carry the Packet Tracer virtual packets
- The PT application running on one computer can communicate with the PT application running on 1 or more other computers
- This connectivity between multiple instances of PT supports teamwork, classroom games, collaboration, competition, remote instructor-student interaction, and social networking



# Multiuser Games for Social Learning



➤ Instructor console view of multiuser “Relay Race” game



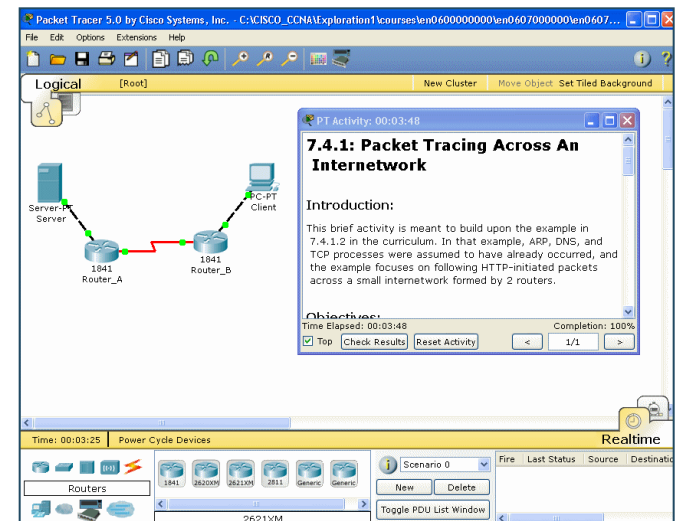
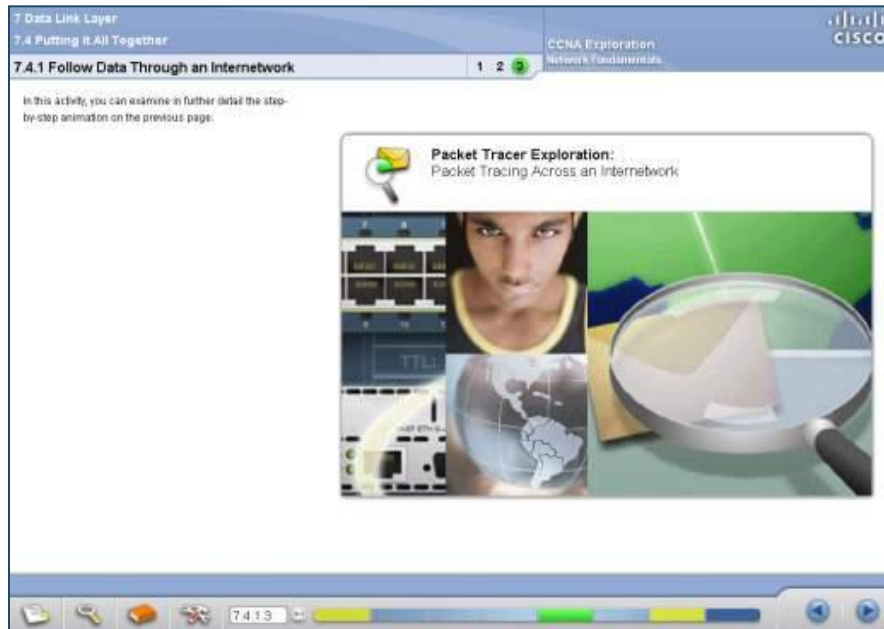
➤ Instructor console view of multiuser “King of the Hill” game

# Packet Tracer Features

- Logical and Physical Workspaces
- Real-Time and Simulation Modes
- User friendly Command Line Interface (CLI)
- Global event list (packet sniffer)
- LAN, switching, TCP/IP, routing, and WAN protocols
- Activity Wizard, Lab grading
- Multiuser functionality
- Multiple platform support
- Multiple language support
- Integrated Help and Tutorials

# Supports Networking Academy Curricula

- Supports the majority of protocols and technologies taught in CCNA Discovery, CCNA Exploration, and CCNA Security, and can also be used to teach concepts from IT Essentials and CCNP courses



# Packet Tracer Version 5.3.2



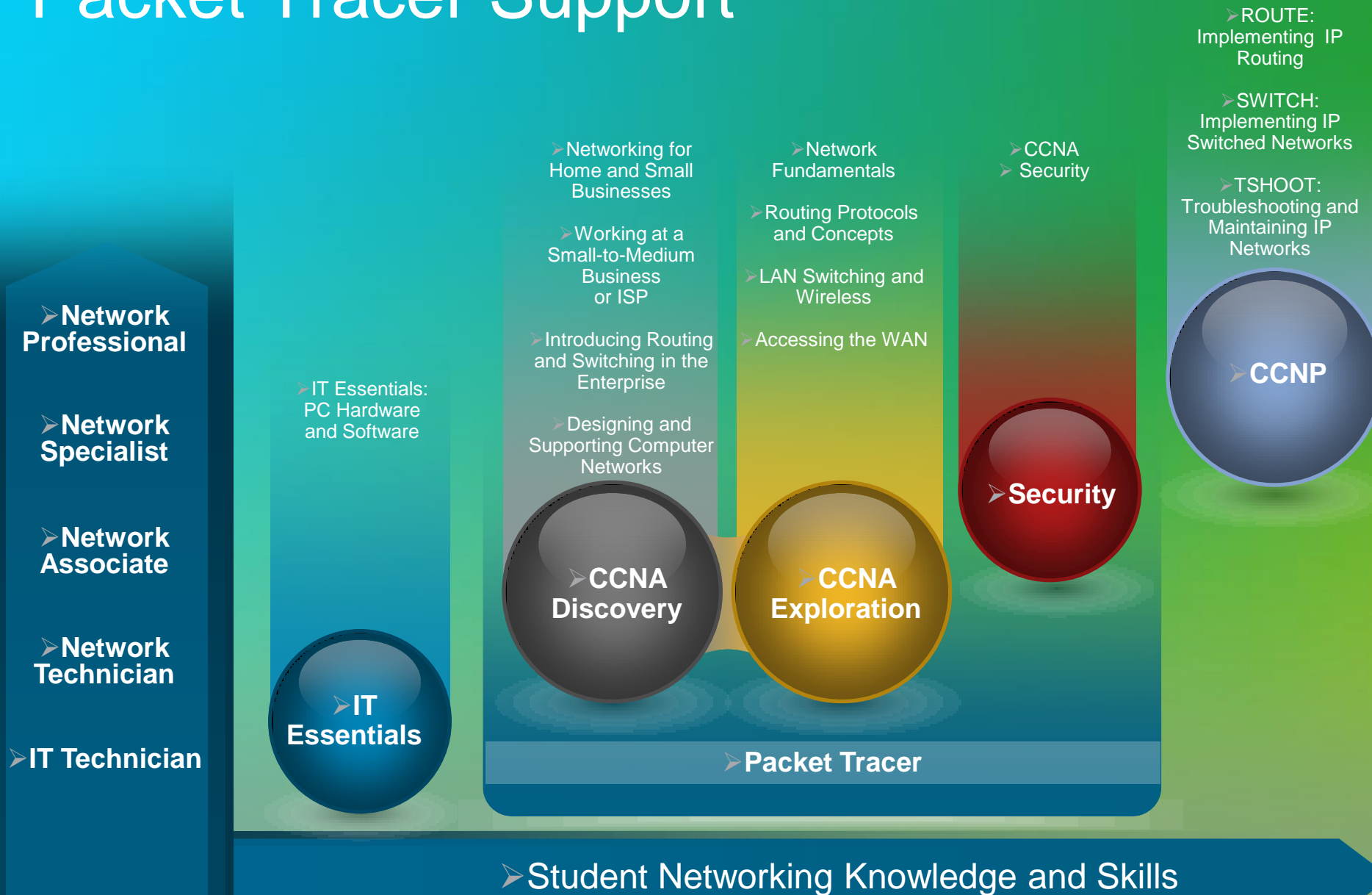
# Latest Version

- PT 5.3.2 released in March 2011 as a maintenance release
- Fixed bugs in version 5.3.1

# What's New in Packet Tracer 5.3.x

- Improved Linksys models, wireless security
- Cable and DSL enhancements
- Call Manager Express (VOIP support)
- FTP server and routers/switches - Server and Client
- Email system (SMTP – POP3) - Server and Client
- BGP – limited implementation that allows for a more realistic representation of the Internet for scenarios
- Generic IP end devices – to create more versatility in device creation
- Activity Wizard Initial Tree enhancements – more scenario variations

# Packet Tracer Support



# Packet Tracer 5.3.2 Protocol Support

- **Application**

FTP , SMTP, POP3, HTTP, TFTP, Telnet, SSH, DNS, DHCP, NTP, SNMP, AAA, ISR VOIP, SCCP config and calls ISR command support, Call Manager Express

- **Transport**

TCP and UDP, TCP Nagle Algorithm & IP Fragmentation, RTP

- **Network**

BGP, IPv4, ICMP, ARP, IPv6, ICMPv6, IPsec, RIPv1/v2/ng, Multi-Area OSPF, EIGRP, Static Routing, Route Redistribution, Multilayer Switching, L3 QoS, NAT, CBAL , Zone-based policy firewall and Intrusion Protection System on the ISR, GRE VPN, IPsec VPN

- **Network Access/Interface**

Ethernet (802.3), 802.11, HDLC, Frame Relay, PPP, PPPoE, STP, RSTP, VTP, DTP, CDP, 802.1q, PAgP, L2 QoS, SLARP, Simple WEP, WPA, EAP

## In CCNA Disc/Exp

- Existent since “ever”
- Integrated in curricula
- Supports all labs
- Some CCNP support (basic BGP, multiarea OSPF, redistribution, EtherChannel)

## In CCNA Security

- Existent since PT5.2
- Separate PKA files
- Supports most labs
- No SDM support

# Packet Tracer Practice SBA



# Practice Assessments for CCNA

- **PT Practice Skills Based Assessments (SBAs)** are the first Packet Tracer Skills Assessments available
- Each CCNA course has a final **hands-on** skills exam
  - Administered on real equipment in person, or on remotely-accessed equipment
  - Assess ability to apply knowledge and perform real skills to succeed in the workforce
- **PT Practice SBAs** provide a technology-based solution to **practice** for the final hands-on exam
  - Available for all CCNA Discovery, Exploration and Security courses
  - Help indicate a student's readiness for final hands-on exam
- **Required!** Packet Tracer 5.2.1 or above & Java 1.6 or above



# Assessment Activation

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☐ **Batch Activation**

Select	Assessment Title	Required for Course Completion
<input type="checkbox"/>	CCNAS Chapter 1	
<input type="checkbox"/>	CCNAS Chapter 2	
<input type="checkbox"/>	CCNAS Chapter 3	
<input type="checkbox"/>	CCNAS Chapter 4	
<input type="checkbox"/>	CCNAS Chapter 5	
<input type="checkbox"/>	CCNAS Chapter 6	
<input type="checkbox"/>	CCNAS Chapter 7	
<input type="checkbox"/>	CCNAS Chapter 8	
<input type="checkbox"/>	CCNAS Chapter 9	
<input type="checkbox"/>	CCNAS PT Practice SBA	

Based on your performance on this assessment covering similar networking skills. The estimate is that you will be able to successfully perform these networking tasks.

## Verification and Troubleshooting

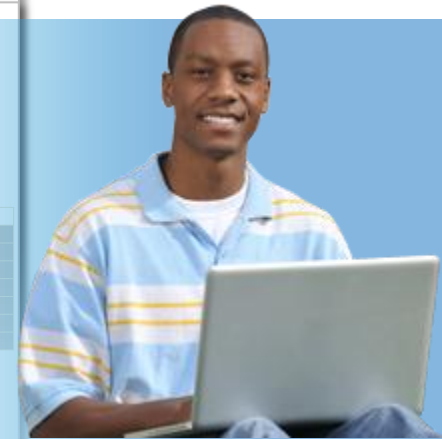
See [Terminology](#) section for an explanation

**Total Points Possible = 100**  
**Total Earned Points = 69**

Description: The student can connect network devices and hosts for both LAN and WAN access. The student can establish a console connection and navigate the IOS.  
Maximum Points = 6  
Earned Points = 6

Work Product Feature	Student Result	Points
Device Connection		6
PC1 to Switch1 Connection		2
Network: PC1 : Ports: FastEthernet Link to Switch1: Type	Correct	
Switch1 to Router1 Connection		2
Network: Router1 : Ports: FastEthernet0/0 Link to Switch1: Type	Correct	
Switch2 to Router1 Connection		2
Network: Router1 : Ports: FastEthernet0/1 Link to Switch2: Type	Correct	

Description: The student can subnet a given address space based on given set of requirements. From the student's subnetting scheme, the student can assign valid IP addresses to hosts and networking devices.  
Maximum Points = 42  
Earned Points = 22



1



2



3

Class Information										
Class Name:	CCNA Exploration Course 4									
Class ID:	1234567									
Course:	Networking the ITAN									
Version:	4.0									
Grading										
Weight (Total 100 %)	3	3	3	3	3	3	3	3	3	28
View Item Information										
Student 1	72.0	81.0	66.0	88.0	83.0	82.0	96.0	86.0	75.0	8.0
Student 2	72.0	81.0	73.0	-	-	-	92.0	62.0	-	77.0
Student 3	81.0	80.0	84.0	100	82.0	86.0	60.0	66.0	-	8.0
Student 4	62.0	62.0	61.0	76.0	66.0	66.0	66.0	66.0	66.0	8.0

➤ Automatically Scored

4



5

# Summary



# Packet Tracer Key Take Aways

- Packet Tracer is a powerful network simulation program that allows students to experiment with network behavior and ask “what if” questions
- Makes teaching and learning networking technology easier
- Not intended to replace experiences with real equipment, but rather to complement them
- A laboratory for teaching and learning; you can experiment, you can create your own virtual network “world”
- Helps students develop 21st century skills such as decision making, creative and critical thinking, and problem solving
- Packet Tracer is an integral part of the Networking Academy comprehensive learning experience
- Online practice skills-based assessment are now available on Academy Connection

# Packet Tracer Availability

- Packet Tracer is available **free to all Networking Academy instructors, students and alumni** on Academy Connection

- To obtain Packet Tracer

Log in to Academy Connection

Click the Packet Tracer image on the left side of your Home Page

Select the appropriate download option



- Recommendation

Download to a local server at your academy and have students install Packet Tracer from the local server

# PT in Library (1/2)

Library

Program ▾

Course Catalog ▾

Instructor Resources ▾

Equipment Information ▾

Curricula Translation ▾

Professional Development ▾

Help

Library

Course Catalog

IT Essentials : PC  
Hardware and Software

CCNA Discovery

CCNA Exploration

CCNA Security

CCNP

Accessibility

Assessment

Cisco Packet Tracer

Cisco Passport21

CCNA Servers







## Cisco Packet Tracer

Cisco Packet Tracer is a powerful network simulation program that allows students to experiment with network behavior and ask "what if" questions. As part of the Networking Academy comprehensive learning experience, Packet Tracer provides simulation, visualization, authoring, assessment, and documentation tools that facilitate the teaching and learning of complex technology concepts.

Packet Tracer supplements physical equipment in the classroom by allowing students to create a network with an almost unlimited number of devices. The simulation-based learning environment helps students develop 21st century skills such as decision-making, critical thinking, and problem solving.

Packet Tracer complements the Networking Academy curricula, allowing instructors to easily teach and demonstrate complex technical concepts. With Packet Tracer, instructors can customize individual or multiuser activities, providing hands-on lessons for students that can be used in their classrooms. Students can build, configure, and troubleshoot networks using virtual equipment and simulated connections, alone or in groups. Most importantly, Packet Tracer helps students and instructors create their own virtual "network worlds" for exploration, experimentation, and documentation of networking concepts and technologies.




Packet Tracer activities are included in the IT Essentials, CCNA Discovery, CCNA Exploration, and CCNA Security curricula to provide rich network simulation experiences.

Title	Document
FAQ	 (PDF - 105 KB)
Datasheet	 (PDF - 1.00 MB)
At A Glance	 (PDF - 260 KB)
Overview Presentation	 (PPT - 2.41 MB)
Packet Tracer Curricula Support Chart	 (PDF - 76.8 KB)
<a href="#">Packet Tracer Skills Assessments resources</a>	
<a href="#">Launch Packet Tracer Video</a> 	

# PT in Library (2/2)

[Packet Tracer Trivia](#) 

## Packet Tracer Video Downloads

Title	Docu
Low resolution version	 (ZIP - 8.8 MB)
High resolution version	 (ZIP - 13.1 MB)
High resolution self-running .exe version	 (ZIP - 14.4 MB)

## Software Downloads

Download the latest Packet Tracer software application and tutorial program, available in Windows and Linux versions:

- [Cisco Packet Tracer program downloads](#)

## Tutorials and training materials

Download basic and advanced tutorials and additional training materials to help you learn more about Packet Tracer's extensive feature

- [Cisco Packet Tracer additional tutorials and training materials](#)

## Topologies and Activities

Download PKT, PKA, and PKZ files for extended examples and activities:

Title	Docum
Supplemental Activities for CCNA	 (ZIP - 936 KB)

## Packet Tracer Discussion Forum

The Cisco Packet Tracer Discussion Forum provides access to the global instructor community for questions, discussions, and sharing Packet Tracer:

- [Packet Tracer Community](#)

# PT in Communities (1/2)

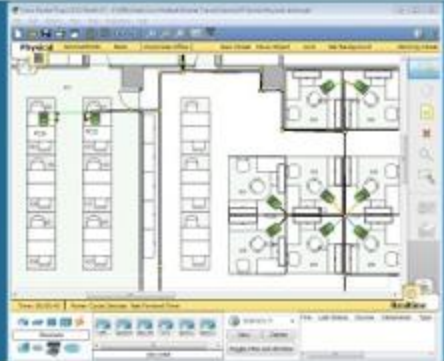
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Home Cisco Library ▾ Communities ▾ Support

## PT Community

### Packet Tracer Home

- [Forums](#)
- [Files](#)
- [Blogs](#)
- [Events](#)
- [News](#)
- [Games](#)
- [Wiki](#)
- [Report a Bug in PT](#)
- [Research Collaborative](#)



## Want Ads

If you are interested in being an active member of the Packet Tracer community please click on the link at the bottom of the page to read more about making this community a better place for everyone.

[Click here to learn more about helping the community](#)

The Packet Tracer Community is a place where we can all learn about PT, create and share our own content, and much, much more. Would you like to play a game? Check out page two of the above headlines. **New version of Packet Tracer just released, see page five of the headlines.**

## EVENTS

**Session: Things Contained In Packet Tracer You May Not Know About**  
**Date:** 4/18/2011 - **Time:** 9:00 AM Central Time (CT - Chicago, USA) - [Timezone Converter](#)  
[Event Description](#)

# PT in Communities (2/2)

## Packet Tracer

Welcome to the official Cisco Library of Resources for Packet Tracer. For all other materials, including shared community resources, use the Search field in the menu bar.

Overview

Find Resources

Reset Filters

Enter Keywords to Filter Your Results...

Content Types

All

Language

All

Showing 1-10 of 37 Results

Advanced Tutorials for Packet Tracer

English



Info



Cisco Packet Tracer 5.3 FAQ

English



Info



Cisco Packet Tracer Overview

English



Info



Instructions for adding Advanced Tutorials to Packet Tracer 5.2.1.8  
Packet Tracer

English



Info



Instructions for adding Advanced Tutorials to Packet Tracer 5.3.1

English



Info



Overview Presentation  
Packet Tracer

English



Info



Packet Tracer 5.0 Brochure

English



Info



1

# Packet Tracer Discussion Forum

- Access the global instructor community for questions, discussions, collaboration, and activity sharing

The screenshot shows the Cisco Networking Academy Community forum page. At the top, there's a navigation bar with links for 'My Profile', 'Contacts & Feedback', 'Help', and 'Logout'. Below this is a banner featuring the Cisco logo and a collage of people's faces, with the text 'Cisco Networking Academy'. The main header reads 'CISCO NETWORKING ACADEMY COMMUNITY'. On the left, a sidebar contains a menu with categories like 'ACADEMY CONNECTION', 'NETWORKING ACADEMY COMMUNITY', and 'INSTRUCTOR COMMUNITY'. Under 'INSTRUCTOR COMMUNITY', there's a sub-menu for 'Cisco Packet Tracer' with options like 'Discuss Best Practices', 'Packet Tracer Training', 'Activity Wizard', and 'Cisco Packet Tracer Support'. A 'Download Packet Tracer' button is also visible. The main content area is titled 'Cisco Packet Tracer' and includes a 'Message Center' link, a breadcrumb trail ('Community Home > Instructor Community > Cisco Packet Tracer > Cisco Packet Tracer'), and a description of the software. It lists links for downloading the software, watching a video, reporting bugs, and discussing best practices. The right sidebar features a search bar, a 'Who's Online?' section with a 'Send Live Message' button, and a 'Help Stop Online Cheating' section with an illustration of a person with a computer.

My Profile | Contacts & Feedback | Help | Logout

**CISCO** Cisco Networking Academy

CISCO NETWORKING ACADEMY COMMUNITY

ACADEMY CONNECTION +  
NETWORKING ACADEMY COMMUNITY +  
INSTRUCTOR COMMUNITY +  
▼ Cisco Packet Tracer  
Discuss Best Practices +  
Packet Tracer Training  
Activity Wizard  
Cisco Packet Tracer Support

**Packet Tracer - Version 5.x**  
Now Available

**Cisco Packet Tracer**  
Download  
Download Packet Tracer  
Discuss Packet Tracer

Search  
:: Membership Directory  
:: Academy & Class Locator  
Search Community  
Go  
:: Advanced Search  
Resources  
:: Community Help  
:: Community Agreement

**Who's Online?**  
Send Live Message  
Edit Buddy List  
Who's Here?  
barkelly95125

**Help Stop Online Cheating**

**Cisco Packet Tracer**  
Message Center | Watch Favorite Members | Preferences  
Community Home > Instructor Community > Cisco Packet Tracer > Cisco Packet Tracer

**Cisco Packet Tracer**  
Cisco Packet Tracer is now available. Cisco Packet Tracer is a stand-alone, medium-fidelity simulation and visualization environment designed for networking novices to design, configure, and troubleshoot CCNA-level networks.  
>> Download Cisco Packet Tracer v5.x  
>> Cisco Packet Tracer Video  
>> Report a Cisco Packet Tracer Bug

**Discuss Best Practices**  
Share information on Best Practices for teaching and using Cisco Packet Tracer in the classroom.

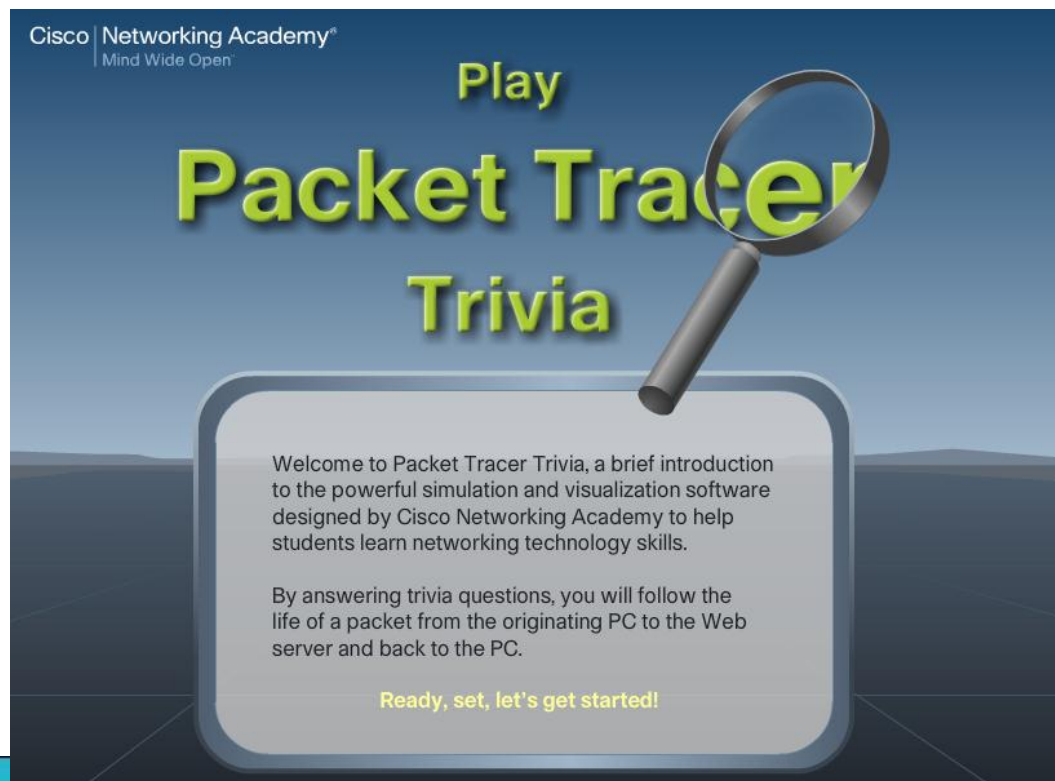
**Cisco Packet Tracer Training**  
Access training tutorials and learn more about how to use Cisco Packet Tracer.

**Activity Wizard**  
Learn more about the activity wizard; author and share activities within your postings.

**Cisco Packet Tracer Support**  
Discuss problems and technical challenges you may be experiencing with Cisco Packet Tracer. Submit suggestions for new features and improvements.

# Packet Tracer Trivia

- A fun activity that demonstrates how Packet Tracer is transforming student learning and helping to build 21<sup>st</sup> century skills
- Available on [www.packettracertrivia.com](http://www.packettracertrivia.com)



Thank you.

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